

Patent Claims:

1. Method and/or arrangement for identifying fluorescing, luminescing and/or absorbing substances on and/or in sample carriers, particularly with high sample throughput in sample screening and/or in diagnostics, preferably in the analysis of samples in microtiter plates (MTP), wherein a spectral splitting of the sample light is carried out and detection is carried out in a plurality of detection channels, and at least one summation and/or combination of the signals of the individual channels is carried out for at least a portion of the detection channels.
2. Method and/or arrangement according to claim 1, wherein at least one standard sample (STD) and/or at least one blank sample (BLK) are/is arranged on the sample carrier in addition to the substances (PRB) to be examined.
3. Method and/or arrangement according to one of the preceding claims, wherein a spectrum of at least one standard sample (STD) is recorded in a first step.
4. Method and/or arrangement according to one of the preceding claims, wherein spectral regions of interest (SRI) in which measurement is carried out are determined automatically or by input means, preferably based on measured standard spectra.
5. Method and/or arrangement according to one of the preceding claims, wherein the detection channels of at least one spectral region of interest (SRI) are summed.
6. Method and/or arrangement according to one of the preceding claims, wherein a change is carried out in the regions of summed detection channels and/or individual detection channels or groups of channels are switched off.
7. Method and/or arrangement according to one of the preceding claims, wherein a relative signal intensity of the substance is determined from the quotient $(PRB-BLK) / (STD-BLK)$, where PRB is the measured signal of the substance, STD is the measured signal of the standard sample, BLK is the measured signal of the substrate (blank sample).
8. Method and/or arrangement according to one of the preceding claims, wherein

an average is taken over a plurality of samples for STD and/or BLK.

9. Method and/or arrangement according to one of the preceding claims, wherein a spectral unmixing according to at least two components is carried out for at least one substance based on standard samples.

10. Method and/or arrangement according to one of the preceding claims, wherein the ratio of at least two components is taken by unmixing.

11. Method and/or arrangement according to one of the preceding claims, wherein a dispersive element, preferably a grating or prism, and a receiver arrangement which is spatially resolving in at least one direction are provided.

12. Method and/or arrangement according to one of the preceding claims, wherein the receiver arrangement is a line detector.

13. Method and/or arrangement according to one of the preceding claims, wherein the line detector is a multichannel PMT.

14. Method and/or arrangement according to one of the preceding claims, wherein a spectral weighting between a plurality of detection channels, a summation of the weighted channels of the signals of the detection channels, and a summation of the detection channels are carried out.

15. Method and/or arrangement according to one of the preceding claims, wherein the weighting curve is a straight line.

16. Method and/or arrangement according to one of the preceding claims, wherein signals of detection channels are converted and digitally read out, and the weighting and summation are carried out digitally in a computing device.

17. Method and/or arrangement according to one of the preceding claims, wherein the weighting and summation are carried out with analog data processing by means of a resistor cascade.

18. Method and/or arrangement according to one of the preceding claims, wherein the resistors are adjustable.

19. Method and/or arrangement according to one of the preceding claims, wherein the weighting curve is adjustable.